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On 17 NOV 2006

TOWNSEND and TOWNSEND and CREW LLP

By: Malvinder Dogra

PATENT
Attorney Docket No.: 015280-458000US
Client Ref. No.: E-039-2002/0-US-02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

DIMITROV et al.

Application No.: 10/506,651

Filed: November 16, 2004

For: HIV-1 ENVELOPE GLYCOPROTEINS STABILIZED BY FLEXIBLE LINKERS AS POTENT ENTRY INHIBITORS AND IMMUNOGENS

Customer No.: 45115

Confirmation No. 3349

Examiner: HUMPHREY, Louise Wang Zhiying

Technology Center/Art Unit: 1648

RESPONSE TO RESTRICTION REQUIREMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Enclosed is a Supplemental Application Data Sheet which reflects the proper Customer Number to be associated with this application.

In response to the restriction requirement mailed October 18, 2006, Applicants elect Group I, claims 1-4, 10, 50, and 55, drawn to the technical feature of a composition comprising an HIV envelope gp160 that is truncated at a position within 5 amino acids at either side of amino acid 683 in SEQ ID NO:2. This election is made with traverse.

As the Examiner has recognized, the proper standard governing the assessment of unity of invention in this application is PCT Rule 13.1, which requires the presence of a single general inventive concept. The invention as defined by the pending claims of this application does present one single general inventive concept: a fusion polypeptide of the gp120 subunits and the gp41 subunit of the HIV gp160 protein. More specifically, the C-terminus of gp120 is covalently linked to the N-terminus of gp41 by a peptide linker of at least 5 amino acids.

In the restriction requirement, however, the Examiner has concluded that this single general inventive concept is missing, because the Examiner believes that the Fouts (J. Virol. 74:11427, 2000) and Salzwedel (PNAS 97:12794, 2000) references disclose the concept of a gp120-gp41 fusion polypeptide. Applicants respectfully argues that this conclusion is erroneous because the two references do not describe any such gp120-gp40 fusion polypeptide as defined by the pending claims.

First, the Fouts reference describes a fusion polypeptide between gp120 and CD4, not a fusion between gp120 and gp41. See, *e.g.*, title, abstract, and text (particularly the paragraph immediately below the title "RESULTS" on page 11429, describing the construction of two gp120-CD4 fusions FLSC and TcSC) of the reference.

Second, although the Salzwedel reference does describe several modified gp160 variants, none of these variants fits the profile of the gp120-gp41 fusion polypeptide of this invention. More specifically, the paragraph on page 12795 of the reference (immediately under the titles "Results" and "Design of Env Variants") and Figure 1 provide details of the structure of the variants: the first type of variants has a point mutation leading to the loss of CD-4 binding site (the SF162-BS and LAV-BS mutants), and the second type of variants contains a Leu to Arg substitution at residue 26 of gp41 leading to abrogation of fusion (the SF162-FP and LAV-FP mutants). Although the term "fusion peptide" is used by the authors both in the figure and description, Applicants note that the word "fusion" refers to the process of membrane fusion between HIV virion and host cell, as described in the first paragraph of the reference on page 12794. Therefore, the term "fusion peptide" as used in this reference does not describe a peptide linker of the present invention. Furthermore, because each of the gp160 variants made by

Salzwedel *et al.* involves a point mutation only, they cannot constitute a fusion polypeptide of gp120 and gp41 with a linker of at least 5 amino acids in between.

In view of the foregoing, Applicants respectfully submit that the restriction requirement is improper because the Examiner has not identified prior art that destroys the common inventive concept connecting the pending claims. Moreover, the division of the pending claims of this application into 28 groups would require Applicants to file a total of 28 patent applications to pursue the full scope of protection for their invention. This is a tremendous burden no patent applicant should and could carry.

For these reasons, the Examiner's reconsideration and withdrawal of the restriction requirement is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

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